L7: Entry 18 of 26 File: USPT Aug 21, 2001

DOCUMENT-IDENTIFIER: US 6278938 B1
TITLE: Method of processing waypoint data for travel guide device

Abstract Text (1):
A travel guide device includes a GPS receiver for determining a present location. Access to a database of points-of-interest, indexed by GPS location, is provided to permit timely presentation of audio narration or visual display of information relevant to the point-of-interest. A running, general area narrative and/or display may alternatively be provided. The travel guide device may provide educational and entertaining games, including interactive competitive games, relating to the points-of-interest and general area narratives. A navigation function includes automatic, intelligent collection of waypoints and general directions without stored, detailed maps of an area for which directions are being provided. Waypoint collections may be employed to document a route travel, to retrace the route, or for other purposes. A directory of locations such as restaurants, filling stations, and the like may be accessed by the travel guide device to determine GPS coordinates for a desired destination for general directions navigation. Communication facilities integrated into the travel guide device provide optional communications services, such as downloading a local directory for an area being entered.

Brief Summary Text (3):
The present invention relates generally to global positioning systems (GPS) in automotive vehicles and in particular to global positioning systems which are utilized to identify a vehicle's location with respect to surrounding features. Still more particularly, the present invention relates to a travel guide for an automotive vehicle system which employs global positioning system data to provide information regarding points of interest as well as directional information.

Brief Summary Text (5):
Global positioning systems (GPS) are being utilized in a number of broad-based consumer environments, including within automotive vehicles. Several automobile manufacturers provide accessories allowing the driver to identify their location with respect to surrounding features (streets, buildings, etc.), and may provide a display assisting the driver in reaching their destination. Such capabilities have typically been limited, however, to providing information such as street names to the driver.

Brief Summary Text (7):
It would be desirable to provide a system which utilizes the GPS coordinates of a present location to coordinate the provision of entertainment information to a vehicle driver and/or passenger(s). It would also be desirable for the entertainment information to be automatically and spontaneously provided to the travelers, interrupting or superseding any programs in progress to provide entertainment information keyed on location to avoid timing difficulties. It would further be advantageous to provide a system which also supports interactive applications with such entertainment information.

Brief Summary Text (9):
A travel guide device includes a GPS receiver for determining a present location. Access to a database of points-of-interest, indexed by GPS location, is provided to permit timely presentation of audio narration or visual display of information relevant to the point-of-interest. A running, general area narrative and/or display

may alternatively be provided. The travel guide device may provide educational and entertaining games, including interactive competitive games, relating to the points-of-interest and general area narratives. A navigation function includes automatic, intelligent collection of waypoints and general directions without stored, detailed maps of an area for which directions are being provided. Waypoint collections may be employed to document a route travel, to retrace the route, or for other purposes. A directory of locations such as restaurants, filling stations, and the like may be accessed by the travel guide device to determine GPS coordinates for a desired destination for general directions navigation. Communication facilities integrated into the travel guide device provide optional communications services, such as downloading a local directory for an area being entered.

Detailed Description Text (2):
With reference now to the figures, and in particular with reference to FIG. 1, an environment in which a preferred embodiment of the present invention may be implemented is depicted. The present invention utilizes one or more global positioning system (GPS) satellites 102a-102n orbiting the earth and providing signals from which GPS coordinates of a surface location may be ascertained in accordance with the known art. The present invention may be implemented within a vehicle 104 containing a travel guide device (not shown) moving through a region containing at least one location 106 having a known set of GPS coordinates, or within a predefined region 108 including a known set or ranges of GPS coordinates. The construction and operation of the travel guide device is described in further detail below. Although depicted as being utilized in conjunction with a vehicle, the travel guide device has application in a variety of modes of travel, including land-based vehicles (passenger vehicles, off-road vehicles, etc.), aircraft, boats, transportation by animal and walking. Not all of the functionality described below need be implemented for every mode of travel, and the implementation of different features may vary according to mode of travel.

Detailed Description Text (3):
Referring to FIG. 2, a block diagram of a travel guide device in accordance with a preferred embodiment of the present invention is illustrated. Travel guide device 200 includes a GPS receiver 202, which may be a commercially available GPS receiver providing GPS coordinates for a current location over a standardized interface. GPS receiver provides GPS coordinates on a periodic basis to data processing system 204. Data processing system 204 may be a conventional portable data processing system such as a laptop or notebook computer, or may be a dedicated data processing system. Data processing system 204 should include a processor 208 for executing instructions necessary to implement the required functionality, a memory 208 in which such instructions and relevant data may be stored, a nonvolatile memory 210 containing additional necessary functionality such as, for instance, an operating system and/or a basic input/output system (BIOS), and interfaces 212 to various peripheral devices, including GPS receiver 202. The construction and operation of a suitable data processing system 204 is well known in the art and need not be further described.

Detailed Description Text (4):
Travel guide device 200 also includes a database 214 accessible to data processing system 204 which may be contained on a compact disc (CD), a compact disc read-only memory (CD ROM), or a digital video disc (DVD) accessed through an appropriate peripheral device. Database 214 contains a plurality of information blocks or references for locations within a predefined geographic region, indexed by the GPS coordinates for the respective location. The references (not shown) may be indexed to a specific GPS coordinate (latitude and longitude), or to a range of GPS coordinates. Database 214 also includes any offsets, etc., necessary for operation of the travel guide device in one or more of the manners described below.

Detailed Description Text (10):
One functional feature of a travel guide device of the present invention which may be selected by the user in the process described above is a narration function, in which the vehicle location, direction of travel, speed, and/or altitude, is ascertained to an acceptable accuracy from data received by the GPS receiver, or from information derived from that data. Matching this vehicle location information to indexed references stored within the database, the travel guide device provides a

timely narration regarding a passing point of interest or a general area through which the vehicle is travelling.

Detailed Description Text (12):
FIG. 3C depicts the process of point-of-interest narration within the travel guide device of the present invention. The GPS coordinates of a number of points-of-interest for a defined geographic region are contained within the database, together with associated narration information. The associated narration information may be, for example, digital audio and/or video information containing a narration or depiction of one or more facts regarding each point-of-interest location within the database, which may include unusual attributes of a point-of-interest location or interesting historical events which occurred proximate to the point-of-interest location.

Detailed Description Text (13):
In accordance with the present invention, the travel guide device determines when the vehicle is approaching a point-of-interest location and, at an appropriate time, automatically begins transmitting the narration information associated within the database with the GPS coordinates of the point-of-interest location being approached. The timing of the transmission of the narration information may be correlated to the location and speed of the vehicle, ascertained from the GPS coordinates provided by the GPS receiver. The narration information is transmitted to a playback device such as an audio or video system within the vehicle. Thus, for example, when the vehicle is moving through northern New Mexico towards Raton with music playing on the audio system within vehicle, the travel guide device may retrieve from a reference entry associated with a point-of-interest location from a database for the southwest United States, automatically interrupt the music, and transmit a digitally encoded narration to the audio system such as:

Detailed Description Text (18):
The travel guide device thus automatically provides entertainment information relating to a point-of-interest location to a playback device within the vehicle as the vehicle nears the point-of-interest location, interrupting any current entertainment program which may be in progress. The entertainment information may include narrations describing interesting attributes or historical events associated with a point-of-interest location as described above, or may also include video depictions of such attributes or historical events for display on a video system (not shown) within the vehicle.

Detailed Description Text (19):
The travel guide device automatically and spontaneously informs and entertains travelers within the vehicle, which may, for instance, include vacationing tourists, about passing points of interest as they travel. The travel guide device may, for instance, be leased to the tourists by a travel or tour service, together with one or more databases for a geographic region through which the tourists plan to travel. Alternatively, the travel guide device may be employed by a park, such as a national park or a wildlife park, to provide self-guided, self-paced tours. The accuracy of most commercial GPS systems is generally about 100 feet, making the travel guide device suitable for self-guided tours in large parks or entertainment complexes. Because the entertainment information is keyed to location, timing difficulties associated with a continuous-play embodiment are avoided.

Detailed Description Text (20):
After the point-of-interest narration program is started (see step 308 in FIG. 3B), the process proceeds to step 311, which depicts getting the current location GPS coordinates from the GPS receiver. The process then passes to step 312, which illustrates a determination of whether a match may be determined for the point-of-interest entries within the database. This determination may involve ascertaining whether the vehicle is within a range of distances from the GPS coordinates of the point-of-interest location, and may require computations relating to the vehicle speed and an offset associated with the narrations information (based on a length of the narration information) used to determine when the narration should be started for timely presentation.

Detailed Description Text (22):

If the vehicle audio system is on, the process proceeds instead to step 314, which illustrates playing an interrupt message, then next to step 315, which depicts playing the point-of-interest narration message, and then to step 316, which illustrates playing the un-interrupt message. An example of these messages was described earlier. The process then returns to step 311 to retrieve updated GPS coordinates from the GPS receiver, seeking to ascertain another matching point-of-interest location within the database.

Detailed Description Text (23):
FIG. 3D depicts a general area narrative process. In addition to interrupting currently playing entertainment to provide point-of-interest narrations, the travel guide device may provide a running narrative regarding the general area through which the vehicle is travelling. For instance, assuming the same location and database described above, the travel guide device might provide a narration including, in part:

Detailed Description Text (25):
The Cimmaron Trail, which passes about 10 miles south of your current location, was used by wagon trains traveling west. The trail was also used to move herds of cattle . . . "

Detailed Description Text (27):
After the general area narration program is started (see step 309 in FIG. 3B), the process proceeds to step 317, which depicts getting the current location GPS coordinates from the GPS receiver. The process then passes to step 318, which illustrates a determination of whether a match may be determined for the general area entries within the database. This determination may involve ascertaining whether the GPS coordinates for the vehicle's present location fall within a predefined range of GPS coordinates for a general area entry.

Detailed Description Text (28):
If no match is identified within the general area entries within the database, the process returns to step 317 to retrieve updated GPS coordinates from the GPS receiver. If a matching general area entry is identified, the process proceeds instead to step 319, which depicts a determination of whether a suitable playback device such as the vehicle audio system is on. If not, the process simply returns to step 317. If a suitable playback device is on, however, the process proceeds instead to step 320, which illustrates playing the general area narration message associated with the matching general area entry, then next to optional step 321, which depicts playing any point-of-interest narration messages which may fall within the range of GPS coordinates defining the region for a matching general area entry. The process then returns to step 317 to retrieve updated GPS coordinates from the GPS receiver, seeking to identify a subsequent general area entry matching the vehicle's location.

Detailed Description Text (29):
FIG. 3E depicts user selection of a navigation function option within the travel guide device of the present invention. Knowing the location of a vehicle, determined within an acceptable accuracy from the GPS coordinates retrieved from the GPS receiver, the travel guide device may identify the latitude and longitude, altitude, direction of travel and speed of travel at any given instant. As used herein, the term "waypoint" refers to a datapoint including at least the latitude and longitude of a location during travel, and optionally the altitude, direction and speed, and other attributes.

Detailed Description Text (30):
The travel guide device of the present invention utilizes data received from the GPS receiver and information derived from that data to implement at least two navigation options: an advanced method for automatically collecting and storing waypoints representing a route traveled, and the provision of general direction to a destination. Although described as separate options, the two are complementary and may be implementing in an interlocking fashion.

Detailed Description Text (31):
The process for user selection of a navigation option begins at step 322, which

illustrates displaying the navigation options. The process then passes to step 323, which depicts user selection of a navigation option. The process may then pass to step 324, which illustrates user selection of the waypoint collection option, and then to step 325, which depicts starting the waypoint collection program of the present invention. Alternatively, the process may instead pass to step 326, which illustrates user selection of the general directions option, and then to step 327, which depicts starting the general directions program of the present invention. From either of steps 325 or 327, the process passes to step 328, which illustrates stopping the process for user selection of a navigation option.

Detailed Description Text (33):
The process begins at step 329, which depicts allocating space for the waypoint table within the desired storage media. The process next passes to step 330, which illustrates retrieving the current location GPS coordinates from the GPS receiver, and then to step 331, which depicts a determination of whether the data retrieved from the GPS receiver indicates a loss of signal (LOS). If so, the process proceeds to step 332, which illustrates placing an LOS entry within the table, and then returns to step 330. The next retrieval of GPS coordinates will then be initiated after the elapse of a defined period, which may be adjusted by the user to define the granularity of the waypoint table or automatically adjusted by the system based on available space in the storage device holding the waypoint table and/or a frequency with which the travel path changes directions.

Detailed Description Text (34):
If no loss of signal has occurred, and GPS coordinates for a current location are available, the process proceeds instead to step 333, which depicts a determination of whether the retrieved GPS coordinates indicate that motion of the travel guide device, and the vehicle in which the travel guide device is being employed, has stopped. This determination may be made by comparing the GPS coordinates for the current location with the last waypoint in the table, and may include some tolerance of slight movement. If motion has stopped, the process proceeds to step 334, which illustrates entering a duration of the stoppage into the table, and then returns to step 330.

Detailed Description Text (38):
If the space allocated for the waypoint table is not yet full, the process returns to step 330 depicted in FIG. 3F. If the allocated space has been filled, however, the process proceeds instead to step 340, which illustrates change the collection interval and compressing the waypoint table. A number of factors may be adjusted to compress the waypoint table, including the minimum distance between waypoints retained in the table and the tolerance between azimuths considered to form a "straight" line between waypoints. As the trip progresses, the granularity or density of waypoints automatically stored to record the trip is adjusted appropriately. The process then returns to step 330 depicted in FIG. 3F. The waypoint collection process thus continues until interrupted or killed. Waypoints automatically collected as described may be employed to generate a printout of the route taken, to refollow the route using the general directions navigation option described below, or utilized as reference information in publications, including digitally encoded maps.

Detailed Description Text (43):
FIG. 3H depicts a process for destination direction navigation within the travel guide device of the present invention. This process may be initiated by the user selecting the general directions navigation option (see step 327 in FIG. 3E). The process begins at step 341, which depicts retrieval of the GPS coordinates for a desired destination. The destination coordinates may be manually entered or ascertained from data within the travel guide device, such as a digitally encoded map indexed by GPS coordinates. The process then passes to step 342, which illustrates retrieving the GPS coordinates for the current location. The process passes next to step 343, which depicts calculating the direction for the arrow to point on a display (which may involve simply computing the azimuth to the desired destination), and then to step 344, which illustrates displaying the arrow on a display device, optionally with text indicating the direction and distance to the desired destination.

Detailed Description Text (45):
The arrow displayed to indicate the direction of a desired location may be superimposed on a digitally encoded map within the display. However, the travel guide device may also direct a user to a desired destination without any map of the area being navigated. The travel guide device simple computes a general direction of travel from the current location to the destination and provides the user with a pointing arrow, together with optional general directions in text or audio form. The destination GPS coordinates may be looked up from a directory, or retrieved from a World Wide Web site maintained by the destination enterprise and including the GPS coordinate information in a recognizable format. Thus, the user may enter destination coordinates directly from a Web site. An arrow on the display points in the general direction of the destination, and text on the display and/or sound from the audio system indicates:

Detailed Description Text (46):
"The destination is about two miles ahead and to the left of your current location".

Detailed Description Text (48):
The general directions navigation option may be employed to retrace a route previously taken and documented by automatic waypoint collection as previously described. The destination arrow and directions are simply computed for each waypoint, with the next waypoint being selected as a new destination when a current waypoint is reached.

Detailed Description Text (49):
FIG. 3I depicts a directory function within the travel guide device of the present invention. The travel guide device database may include a directory of locations (including GPS coordinates) for a number of places such as: hotels and other places of lodging; restaurants and other places to eat; points of interest; medical facilities, pharmacies, and the like; and other subscribing locations. The directory entry may include enterprise names, addresses and telephone numbers, World Wide Web and/or e-mail addresses, GPS coordinates, and brief descriptions. The directory may be maintained manually and/or updated automatically over the communications facilities of the travel guide device. For example, cellular communications service providers within a given area may automatically establish a communications link to the travel guide device as it enters a defined service area and transmit a local directory to the travel guide device.

Detailed Description Text (50):
The process begins at step 349, which illustrates determination of a "range" (radial distance) of locations surrounding a current position to be displayed. The range may be user selected or automatically adjusted based on the number of directory entries retrieved for a specific range value. The process then passes to step 351, which depicts displaying all directory locations within the specified range. The display may be ordered by proximity, by category (restaurants, filling stations, etc.), or according to a user selected preference.

Detailed Description Text (51):
The process then passes to step 351, which illustrates a determination of whether the user has selected a location. If not, the process passes to step 352, which depicts a determination of whether the user has changed the range value. If the range value has not been changed, the process returns to step 351; if the range value has changed, the process returns instead to step 349. This step may optionally also include a determination of whether the GPS coordinates of the travel guide device's location have changed, either by a predefined amount or by an amount sufficient to bring new directory listings within the range.

Detailed Description Text (52):
If the user has selected a location, the process proceeds to step 353, which depicts a determination of whether the user has selected a navigation option or a communications option with respect to the selected location. If a navigation option was selected, the process proceeds to step 354, which illustrates starting the navigation program of the travel guide device. If a communications option was selected, the process proceeds instead to step 355, which depicts starting the

communications program of the travel guide device. From either of step 354 or 355, the process passes to step 356, which illustrates the process becoming idle until the directory function is again invoked by the user.

Detailed Description Text (53):
The directory function of the travel guide device allows a user to view a list of directory entries for locations within a defined range of the user's current position. The user may select a directory entry as a destination for the travel guide device's navigation facilities, or connect to another communications device using information obtained from the selected directory entry.

CLAIMS:

1. A method of automatically collecting waypoints, comprising:

retrieving GPS coordinates for a current location;

comparing the retrieved GPS coordinates to previously collected GPS coordinates;

determining whether the retrieved GPS coordinates are within a defined distance from the previously collected GPS coordinates;

responsive to determining that the retrieved GPS coordinates are not within the defined distance from the previously collected GPS coordinates, storing the retrieved GPS coordinates as a waypoint;

determining whether a space allocated for a waypoint table is full; and

responsive to determining that the allocated space is full, increasing the defined time period for retrieval of GPS coordinates and compressing waypoints within the waypoint table to conform to waypoints collected utilizing the increased defined time period.

2. The method of claim 1, wherein the step of retrieving GPS coordinates for a current location further comprises:

determining whether a defined time period has elapsed since a previous retrieval of GPS coordinates.

3. A method of automatically collecting waypoints, comprising:

retrieving GPS coordinates for a current location upon elapse of a collection interval;

comparing the retrieved GPS coordinates to previously collected GPS coordinates;

determining whether the retrieved GPS coordinates are within a defined distance from the previously collected GPS coordinates;

responsive to determining that the retrieved GPS coordinates are not within the defined distance from the previously collected GPS coordinates, storing the retrieved GPS coordinates as a waypoint;

determining whether the retrieved GPS coordinates and the previously collected GPS coordinates indicate a stop in motion by determining whether the retrieved GPS coordinates match the previously collected GPS coordinates; and

responsive to determining that the retrieved GPS coordinates match the previously collected GPS coordinates:

creating a time period entry for a waypoint within a waypoint table for the retrieved GPS coordinates if none exists; and

incrementing the time period entry for the waypoint if one exists.

4. A method of automatically collecting waypoints, comprising:

retrieving GPS coordinates for a current location;

comparing the retrieved GPS coordinates to a straight line intersecting first and second previously collected GPS coordinates;

determining whether the retrieved GPS coordinates are within a defined tolerance from the straight line; and

responsive to, determining that the retrieved GPS coordinates are not within the defined tolerance from the straight line, storing the retrieved GPS coordinates as a waypoint.

7. A method of automatically collecting waypoints, comprising:

retrieving GPS coordinates for a current location upon elapse of a collection interval;

comparing the retrieved GPS coordinates to first and second previously collected GPS coordinates;

determining whether the retrieved GPS coordinates reflect a loss of signal;

responsive to determining that the retrieved GPS coordinates reflect a loss of signal:

creating a loss of signal entry, if none exists, within a waypoint table, wherein the loss of signal entry includes a time period since a previous retrieval of GPS coordinates; and

updating the loss of signal entry, if one exists, with the time period since the previous retrieval of GPS coordinates;

determining whether the retrieved GPS coordinates reflect a stop in motion;

responsive to determining that the retrieved GPS coordinates reflect a stop in motion:

creating a stop in motion entry, if none exists, within the waypoint table, wherein the stop in motion entry includes a time period elapsed during the stop in motion; and

updating the stop in motion entry, if one exists, with the time period elapsed during the stop in motion;

determining whether the retrieved GPS coordinates reflect a minimum distance travelled from the first previously retrieved GPS coordinates; and

responsive to determining that the retrieved GPS coordinates reflect the minimum distance travelled from the first previously retrieved GPS coordinates:

determining whether the retrieved GPS coordinates are within a minimum tolerance from a straight line intersecting the first and second previously retrieved GPS coordinates;

responsive to determining that the retrieved GPS coordinates are within the minimum tolerance from the straight line, replacing the first previously retrieved GPS coordinates with the retrieved GPS coordinates; and

responsive to determining that the retrieved GPS coordinates are not within the minimum tolerance from the straight line, storing the retrieved GPS coordinates within the waypoint table as a waypoint.

13. The method of claim 7, further comprising:

determining a range of directory locations surrounding a current position;

displaying all directory locations within the range on a display.

14. The method of claim 13, further comprising:

responsive to determining that the user has selected a location, displaying the selected location on the display;

responsive to determining that the user has selected a navigation option, starting a navigation program.

15. A method of automatically collecting waypoints, comprising:

retrieving GPS coordinates for a current location;

comparing the retrieved GPS coordinates to previously collected GPS coordinates;

determining whether the retrieved GPS coordinates are within both a defined distance and a defined altitude from the previously collected GPS coordinates; and

responsive to determining that the retrieved GPS coordinates are not within either the defined distance or the defined altitude from the previously collected GPS coordinates, storing the retrieved GPS coordinates as a waypoint.

16. A method of automatically collecting waypoints, comprising:

retrieving GPS coordinates for a current location upon elapse of a collection interval;

determining whether the retrieved GPS coordinates reflect a loss of signal;

responsive to determining that the retrieved GPS coordinates reflect a loss of signal:

creating a loss of signal entry, if none exists, within a waypoint table, wherein the loss of signal entry includes a time period since a previous retrieval of GPS coordinates; and

updating the loss of signal entry, if one exists, with the time period since the previous retrieval of GPS coordinates.

WEST

Help | Logout | Interrupt

Main Menu | Search Form | Posting Counts | Show S Numbers | Edit S Numbers | Preferences | Cases

Search Results -

Terms	Documents
L8 and l7	22

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search: L9

Refine Search | Recall Text | Clear

Search History

DATE: Wednesday, May 14, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR			
L9	L8 and l7	22	L9
L8	hospital	77589	L8
L7	l5 and L6	26	L7
L6	navigation	62639	L6
L5	l1 and L4	278	L5
L4	address and location and name	56409	L4
L3	l1 near L2	12	L3
L2	database	171896	L2
L1	medical adj facilit$3	3126	L1

END OF SEARCH HISTORY

WEST

Help | Logout | Interrupt

Main Menu | Search Form | Posting Counts | Show S Numbers | Edit S Numbers | Preferences | Cases

Search Results -

Terms	Documents
l5 and L6	26

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search: L7

Refine Search | Recall Text | Clear

Search History

DATE: Wednesday, May 14, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR			
L7	l5 and L6	26	L7
L6	navigation	62639	L6
L5	l1 and L4	278	L5
L4	address and location and name	56409	L4
L3	l1 near L2	12	L3
L2	database	171896	L2
L1	medical adj facilit$3	3126	L1

END OF SEARCH HISTORY

WEST

Help | Logout | Interrupt

Main Menu | Search Form | Posting Counts | Show S Numbers | Edit S Numbers | Preferences | Cases

Search Results -

Terms	Documents
l2 and l13	12

Database: US Patents Full-Text Database
US Pre-Grant Publication Full-Text Database
JPO Abstracts Database
EPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search: L17

Refine Search

Recall Text | Clear

Search History

DATE: Thursday, January 23, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=OR			
L17	l2 and l13	12	L17
L16	l11 and L15	1	L16
L15	navigation	18642	L15
L14	l11 and L13	0	L14
L13	(navigation adj technologies).asn.	108	L13
L12	l10 and L11	4	L12
L11	((medical adj facilit$3) or hospital) near (name or address)	114	L11
L10	(navigation technologies).asn.	82003	L10
L9	l1 and L8	0	L9
L8	telephone	109604	L8
L7	l1 and L6	1	L7
L6	input$	742685	L6
L5	l1 and L4	1	L5
L4	program$ or software	452228	L4
L3	l1 and L2	1	L3
L2	ambulance or hospital	42547	L2
L1	6157891.pn.	1	L1

END OF SEARCH HISTORY

WEST

Help | Logout | Interrupt

Main Menu | Search Form | Posting Counts | Show S Numbers | Edit S Numbers | Preferences | Cases

Search Results -

Terms	Documents
l18 and L20	3

Database:
- US Patents Full Text Database
- US Pre-Grant Publication Full-Text Database
- JPO Abstracts Database
- EPO Abstracts Database
- Derwent World Patents Index
- IBM Technical Disclosure Bulletins

Search: L21

Refine Search

Recall Text | Clear

Search History

DATE: Wednesday, January 22, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB; PLUR=YES; OP=OR			
L21	l18 and L20	3	L21
L20	map$	169904	L20
L19	map$8	169744	L19
L18	l1 same l2	5	L18
L17	L16 adj l13	32	L17
L16	database	89286	L16
L15	l4 and L14	60	L15
L14	l1 and L13	700	L14
L13	l2 or l10	47828	L13
L12	l7 and l10	7	L12
L11	l9 and L10	4	L11
L10	hospital	46765	L10
L9	l7 and L8	11	L9
L8	ambulance	2600	L8
L7	l3 and L6	22	L7
L6	route	177368	L6
L5	l3 and L4	0	L5
L4	along adj route	4089	L4
L3	l1 and L2	58	L3
L2	medical adj facilit$	2351	L2
L1	navigation	25354	L1

END OF SEARCH HISTORY

WEST

Help | Logout | Interrupt

Main Menu | Search Form | Posting Counts | Show S Numbers | Edit S Numbers | Preferences | Cases

Search Results -

Terms	Documents
l7 and L8	11

Database: US Patents Full Text Database
US Pre-Grant Publication Full-Text Database
JPO Abstracts Database
EPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search: L9

Refine Search

Recall Text | Clear

Search History

DATE: Wednesday, January 22, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB; PLUR=YES; OP=OR			
L9	l7 and L8	11	L9
L8	ambulance	2600	L8
L7	l3 and L6	22	L7
L6	route	177368	L6
L5	l3 and L4	0	L5
L4	along adj route	4089	L4
L3	l1 and L2	58	L3
L2	medical adj facilit$	2351	L2
L1	navigation	25354	L1

END OF SEARCH HISTORY